

Research Article

Research on the Improving Effect of the Compound Beverage on the Sports Capacity of Basketball Athletes

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Abstract: This study is based on the characteristics of supplying energy from the body of the basketball players during the movement, combined with the characteristics of the compound sports beverage, analyzed the components of the compound sports beverage with the characteristics of basketball and made corresponding analysis on the measures for improving and recovering the physical stamina of the high level basketball players, so as to enlighten the basketball workers to maintain the healthy states and improve the exercise capacities of the athletes. For physical stamina is the basis for basketball players to use the tactics and techniques, reasonably using nutrition as the supplement is the effective means to eliminate exercise fatigue for the basketball athletes during the high load of training.

Keywords: Basketball athletes, compound beverage, exercise capacities

INTRODUCTION

Basketball game is a non-cyclical sports item, with the characteristics of high intensity motion, high density, long time, fierce confrontation, etc. Generally speaking, modern basketball games ask players to have higher overall quality with the special speed, overall strength, stamina, bounce force, etc. The characteristic of basketball game is the basis for training the physical abilities of the athletes. According to Cheng and Dai (2010) etc., who made research on the activities of A-grade woman basketball game in our country, during the period of the game, the anaerobic energy supply is accounted for 87% of the total energy supply, while the aerobic energy supply is accounted for 12.6%, thus, we can see, ATP-CP and glycolysis played a very important role in the energy supply. The research showed that the basketball players after a heavy loaded exercise, the value of the blood lactic acid LA arrived at 84 mM/ L immediately, 4 min after the exercise, it can reach 11 mM/L (Feng, 2008). According to the report, the basketball players are mainly in anaerobic energy supply when they conduct the continuous fast break, full court man to man, the regional press tactics. From the above, we can see the basketball game belongs to intermittent anaerobic mixing energy project. Physical training should mainly develop the muscle force, action and movement speed (ATP-CP system), in order to enhance glycolysis and lactate tolerance ability. But at the same time, the athlete's aerobic capacity cannot be ignored, the athlete's aerobic energy supply ability is an important factor to guarantee a long period of training, competition and its ability of scavenging lactic acid. Some studies proposed, before our A-class men

basketball game, athletes before the Hb value of static hemoglobin is in a higher level. Generally it is below this level before the training, the average value is about 14.5 g, there is a phenomenon that during the period of the training intermediate (3~4 weeks), the hemoglobin turns low, which should cause enough attention.

MATERIALS AND METHODS

Effect of compound beverage on the basketball players: According to the metabolic rule of matter and energy during the basketball players exercise, reasonable nutrition is an effective way to improve and restore physical stamina. Sports nutrition supplement is exclusively for athletes to use, which can be added to the diet with a special function such as vitamin, minerals, herbs, plant substances, amino acids, active bacteria, metabolites, compound food material or extracts, etc. Its function is to accelerate the recovery of fatigue and improve exercise capacity. The kind of sports nutrition supplement is various with different functions, which must be reasonably used according to the characteristics of special basketball game. The following is from the angle of the compound functional beverage's development to analyze the effect of improving the sports ability of basketball players (Chen, 2008).

Since 1980's, with the rapid growth of Chinese economy, Chinese beverage industry has got vigorous development, Chinese beverage market has experienced the developing process "carbonated drinks-bottled water-tea drinks-fruit and vegetable juice drinks". After the SARS in 2003, many domestic and foreign manufacturers introduced a new generation of

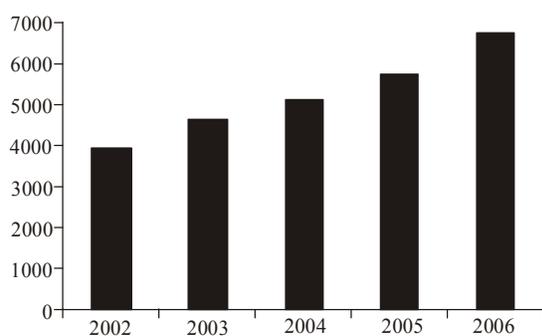


Fig. 1: Sales growth rate of Chinese functional beverage products from 2002 to 2006 (sales amount (US \$/million))

functional beverages, which means the fifth tide is coming to Chinese beverage market.

The development of Chinese beverage market is in line with the developing trend of the current food and beverage industry of the world (Xie, 2009). From 2000 to 2006, the per capita of functional drinks consumption of American consumers was increased year by year. Jin (2007) made some studies and pointed out: in Japanese market, from 2000 to 2005, the average annual growth rate of the functional food/ beverage could reach 9.8%, in 2005, the sales of the "healthy food" was 3395.7 billion yen, among them, the functional beverages accounted for 40.7%, which reached 1382 billion yen. The growth rate of the functional beverage in Chinese market was also fast, which was also a direction for the beverage industry to develop, shown in Fig. 1. So far, the domestic functional beverage manufacturers are mainly from the original large beverage manufacturers, there are many other companies that are involved in this market through merging a new company (Fig. 1).

Analysis of the present situation of the functional beverage market: From the current situation of the functional beverage market, the producing amount and sales growth rate of the functional beverages is very fast in USA, Japan, Europe and other developed countries and its speed of the overall producing amount and the proportion of sales increased very quickly compare to the other soft drinks.

From the development of the functional beverage in the domestic market, sports beverage, energy drinks and healthy drinks experienced different development processes. "Jianlibao" is the earliest brand of the sports beverage to develop in Chinese market, then "Gatorade", "scream" and other brands of sports beverage began to appear. The concept of energy drinks is brought by "Red Bull" into China, after several years of developing in the market, the sales of energy drinks is increased gradually. Healthy drink is the best developed functional beverage in China, among them, "Wong Lo Kat" herbal tea soared up its sales in a few

years and occupied the whole domestic market rapidly (Wu, 2010). On the whole, the domestic functional beverage market grows faster, but the overall output and sales amount is not high accounted for the overall soft drinks, the output and sales amount of the healthy drink is the biggest one, then sports beverage, the output and sales of energy drinks is the smallest.

From the domestic regional market, East China, Southern China, cities of Bohai Bay area, is the main sales market of Chinese functional beverage because of its hot weather in summer and its developed economy.

RESULTS AND DISCUSSION

The athlete groups suited for the functional drinks:

Enthusiasts for a certain kind of sports item: The consumers who love sports items are healthy, full of vitality and with focused attention, they have high popularity, who are "the leaders of the consumers" in the informal organization. Some young friends who love the extreme sports and exploration sports, their personalities have the qualities of tenacity, courage to face the challenge, which made them become the suitable people as the first triers and the earliest consumers of the new sports drinking products.

Students who love sports in school: Young students who love sports are more and more, especially for the students who are high school and college, this consuming group can become the first triers and the earliest consumers of the new sports drinking products.

Adult consumers who love sports: The young people lived in the city whose age is above 18 years old, most of them have already entered into the society and began to work, maybe their occupations are different with the different salaries, but a lot of people have a positive and optimistic attitude towards life, who are keen on sports, the same interests and hobbies made this consuming group become suitable as the first triers and the earliest consumers of the new sports drinking products.

The effect of compound beverage ingredients on the athletes:

Creatine: Creatine is also called guanidine acetic acid, which is the basic component of cells, 95% of creatine existed in the cells of bone and played an important role in storing CP. The current study showed that after the athletes drink creatine, the storing capacity of CP can be increased by 20%, if it is used together with the glucose and taurine, the effect is more obvious. The significance of taking creatine for basketball players lies in it can obviously improve the intermittent short sprint ability, reduce the generation of acid metabolites in muscle, improve anaerobic endurance, increase the ability of muscle protein synthesis, so as to enhance the training effect on the strength and speed training. The

method of taking creatine as the supplement for a long time is 15-25 g as the daily supplement for 5 to 7 days, then 2-2.5 g for 7 to 8 days, the effect can be very obvious, which can increase strength, intermittent short sprint ability and lose fat and weight.

Special amino acid: Amino acids is a key component of the human body, the amount of amino acid in muscle accounted for 80% of the total amino acids in the body, amino acids have a lot of kinds, in the skeletal muscles, the proportion of glutamine, taurine is high, which played an important role in regulating the muscle protein synthesis, improving muscle work ability, increasing immunity, etc. and was similar to the metabolic effects of testosterone synthesis. Basketball players take 2 g glutamine daily during the period of training can improve strength, speed, endurance and keep the number of red blood cell stability with obvious effects (Yang, 2005). During the training time with a large amount of exercise, basketball players takes the mixed products of arginine, ornithine can strongly stimulate the secretion of growth hormone and the growth hormone can play a role in promoting the synthesis of protein, which can significantly improve the strength of the skeletal muscles. However, because the movement itself can stimulate the secretion of growth hormone, therefore, different people have different effects (it is obvious for women). When it is put into use, it should consider the load of the training and the physical conditions of the athletes, use it reasonably.

CONCLUSION

According to the specific nutrition measures for basketball item, it should have great attention to the

ingredients of the beverage for the coaches and athletes, who should increase nutrition knowledge, have scientific diets, strengthen the research on nutrition issues. Meanwhile, having regularly check about the nutrition status of the athletes, considering the relationship between nutrition and training, recovery and physical stamina and so on can achieve the desired effect. With the deeper study on the biochemical characteristics of energy supply of basketball game, the compound sports beverage will combine with the realities of basketball item more and more, which will have a broad prospect in this field.

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